

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Beatty *et al.*

Appl. No.: 09/589,387

Filed: June 7, 2000

For: **Method for Mapping Potential  
Distribution of a Heart Chamber**

Confirmation No.: 8432

Art Unit: 3739

Examiner: Lee S. Cohen

Atty. Docket: 2384.002000I

**Information Disclosure Statement under 37 C.F.R. § 1.97(b) (Part II)**

***Mail Stop Amendment***

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

Listed on accompanying IDS Forms are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.

Copies of documents **NPL31-NPL72** are submitted.

It is expected that the examiner will review the prosecution and cited art in the parent application no. 08/387,832 in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



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				First Named Inventor	Graydon Ernest Beatty
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				Examiner Name	Lee S. Cohen
Sheet	1	of	5	Attorney Docket Number	2384.002000I

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>	
	NPL31	Josephson, M., <i>et al.</i> , "Comparison Of Endocardial Catheter Mapping With Intraoperative Mapping Of Ventricular Tachycardia," <i>Circulation</i> , Vol. 61, No. 2, pp. 395-404 (February 1980).		
	NPL32	Josephson, M., <i>et al.</i> , "Role Of Catheter Mapping In Evaluation Of Ventricular Tachycardia," <i>Ventricular Tachycardia – Mechanisms And Management</i> , pp. 309-330, Mt. Kisco, NY: Futura Publishing Co. (1982).		
	NPL33	Josephson, M., <i>et al.</i> , "Role Of Catheter Mapping In The Preoperative Evaluation Of Ventricular Tachycardia," <i>American Journal of Cardiology</i> , Vol. 40, pp. 207-220 (Jan. 1982).		
	NPL34	Josephson, M., <i>et al.</i> , "Ventricular Activation During Ventricular Endocardial Pacing. II. Role Of Pace-Mapping To Localize Origin Of Ventricular Tachycardia," <i>The American Journal of Cardiology</i> , Vol. 50, pp. 11-22, (July 1982).		
	NPL35	Kaltenbrunner, W., <i>et al.</i> , "Epicardial And Endocardial Mapping Of Ventricular Tachycardia In Patients With Myocardial Infarction: Is The Origin Of The Tachycardia Always Subendocardially Localized?," <i>Circulation</i> , Vol. 84, No. 3, pp. 1058-1071 (Sep. 1991).		
	NPL36	Khoury, D. and RUDY, Y., "A Model Study Of Volume Conductor Effects On Endocardial And Intracavitary Potentials," <i>Circulation Research</i> , Vol. 71, No. 3, pp. 511-525 (Sept. 1992).		
	NPL37	Khoury, D. and RUDY, Y., "Reconstruction Of Endocardial Potentials From Intracavitary Probe Potentials: A Model Study," <i>IEEE 0276-6547/92</i> , pp. 9-12 (1992).		
	NPL38	Kun, S. and PEURA, R., "Conductance Volumetric Model Of An Eccentrically Positioned Catheter Within A Three-Compartment Ellipsoidal Ventricle," <i>IEEE Transactions on Biomedical Engineering</i> , Vol. 40, No. 6, pp. 589-592 (June 1993).		
	NPL39	Langberg, J., <i>et al.</i> , "The Echo-Transponder Electrode Catheter: A New Method For Mapping The Left Ventricle," <i>Journal of the American College of Cardiology</i> , Vol. 12, pp. 218-223 (July 1988).		
	NPL40	Laxer, C., <i>et al.</i> , "A Graphical Display System For Animating Mapped Cardiac Potentials," <i>Third Annual IEEE Symposium on Computer-Based Medical Systems</i> , IEEE Computer Society, pp. 197-204 (1990).		

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	NPL41	Lu, S. and EIHO, S., "Compound 3-D Visualization Of Reconstructed Coronary Arteries, Left Ventricle And Aorta From Biplane X-Ray Angiograms," <i>Computers in Cardiology</i> , IEEE Computer Society Press, 0276-6547/92, pp. 535-538 (Oct. 11-14, 1992).	
	NPL42	Macchi, E., <i>et al.</i> , Intracavitary Mapping: An Improved Method For Locating The Site Of Origin Of Ectopic Ventricular Beats By Means Of A Mathematical Model," <i>IEEE Engineering in Medicine &amp; Biology Society 10th Annual International Conference</i> , pp. 0187-0188 (1988).	
	NPL43	Macchi, E., <i>et al.</i> , "Localization Of Ventricular Ectopic Beats From Intracavitary Potential Distributions: An Inverse Model In Terms Of Sources," <i>IEEE Engineering in Medicine &amp; Biology Society 11th Annual International Conference</i> , pp. 0191-0192 (1989).	
	NPL44	Masse, S., <i>et al.</i> , "A Three-Dimensional Display For Cardiac Activation Mapping," <i>PACE</i> , Vol. 14, Part I, pp. 538-545 (April 1991).	
	NPL45	Moshage, W., <i>et al.</i> , "Biomagnetic Localization Of Ventricular Arrhythmias," <i>Radiology</i> , Vol. 180, No. 3, pp. 685-692 (September 1991).	
	NPL46	Moura, L., <i>et al.</i> , "A Microcomputer-Based Cardiac Mapping System For Recurrent Ventricular Tachycardia Surgery," <i>Computers in Cardiology IEEE Computer Society Press</i> , 0276-6547/92, pp. 431-434 (Oct. 11-14, 1992).	
	NPL47	Pagé, P., <i>et al.</i> , "Surgical Treatment Of Ventricular Tachycardia: Regional Cryoablation Guided By Computerized Epicardial And Endocardial Mapping," <i>Circulation</i> , Vol. 80 (Suppl. I), No. 3, pp. I-124-I-134 (Sep. 1989).	
	NPL48	Pilkington, T., <i>et al.</i> , "Feasibility Of Estimating Endocardial Potentials From Cavity Potentials," <i>IEEE Ninth Annual Conference of the Engineering in Medicine and Biology Society</i> , IEEE, pp. 1875-1876 (1987).	
	NPL49	Pogwizd, S. and CORR, P., "Reentrant And Nonreentrant Mechanisms Contribute To Arrhythmogenesis During Early Myocardial Ischemia: Results Using Three-Dimensional Mapping," <i>Circulation Research</i> , Vol. 61, No. 3, pp. 352-371 (September 1987).	

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	NPL50	Pollak, S., <i>et al.</i> , "Intraoperative Identification Of A Radiofrequency Lesion Allowing Validation Of Catheter Mapping Of Ventricular Tachycardia With A Computerized Balloon Mapping System," <i>PACE</i> , Vol. 15, pp. 854-858 (June 1992).		
	NPL51	Potratz, J., <i>et al.</i> , "Echocardiographic Guiding Of Catheter-Electrode During Endocardial Mapping To Determine Location Of Late Fractionated Potentials In Patients With Acute Myocardial Infarction," <i>European Heart Journal</i> , Vol. 12, Abstract Supplement p. 235, abstract 1242 (Aug. 1991).		
	NPL52	Rudy, Y. and PLONSEY, R., "Annotations: A Note On 'The Brody-Effect'," <i>J. Electrocardiology</i> , Vol. 11, No. 1, pp. 87-90 (1978).		
	NPL53	Rudy, Y. and PLONSEY, R., "The Eccentric Spheres Model As The Basis For A Study Of The Rule Of Geometry And Inhomogeneities In Electrocardiography," <i>IEEE Transactions on Biomedical Engineering</i> , Vol. BME-26, No. 7, pp. 392-399 (July 1979).		
	NPL54	Rudy, Y., <i>et al.</i> , "The Effects Of Variations In Conductivity And Geometrical Parameters On The Electrocardiogram, Using An Eccentric Spheres Model," <i>Circulation Research</i> , Vol. 44, No. 1, pp. 104-111 (January 1979).		
	NPL55	Rudy, Y. <i>et al.</i> , "Inverse Reconstruction Of Epicardial And Endocardial Potentials: The Use Of Temporal Information," <i>IEEE</i> , pp. 2006-2008 (1992).		
	NPL56	Simpson, E., <i>et al.</i> , "Three-Dimensional Visualization Of Electrical Variables In The Ventricular Wall Of The Heart," <i>IEEE</i> , TH0311-1/90, pp. 190-194, (1990).		
	NPL57	Smith, W., <i>et al.</i> , "A Computer System for the Intraoperative Mapping of Ventricular Arrhythmias," <i>Computers and Biomedical Research, an International Journal</i> , Vol. 13, No. 1, pp. 61-72 (Feb. 1980).		
	NPL58	Smith, W. and IDEKER, R., "Computer Techniques For Epicardial And Endocardial Mapping," <i>Progress in Cardiovascular Diseases</i> , Vol. 26, No. 1, pp. 15-32 (July/August 1983).		

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	NPL59	Spach, M. and BARR R., "Analysis Of Ventricular Activation And Repolarization From Intramural And Epicardial Potential Distributions For Ectopic Beats In The Intact Dog," <i>Circulation Research</i> , Vol. 37, pp. 830-843 (December 1975).	
	NPL60	Stellbrink, C., <i>et al.</i> , "Potential Of Intracardiac Ultrasonography As An Adjunct For Mapping And Ablation," <i>American Heart Journal</i> , Vol. 127, No. 4, Part 2, pp. 1095-1101 (April 1994).	
	NPL61	Taccardi, B., <i>et al.</i> , "A New Intracavitary Probe For Detecting The Site Of Origin Of Ectopic Ventricular Beats During One Cardiac Cycle," <i>Circulation</i> , Vol. 75, No. 1, pp. 272-281 (Jan. 1987).	
	NPL62	Taccardi, B., <i>et al.</i> , "Potential Distributions And Excitation Time Maps Recorded With High Spatial Resolution From The Entire Ventricular Surface Of Exposed Dog Hearts," <i>Computers in Cardiology</i> , IEEE Computer Society Press, 0276-6547/92, pp. 1-4 (Oct. 11-14, 1992).	
	NPL63	Tanigawa, M., <i>et al.</i> , "Prolonged And Fractionated Right Atrial Electrograms During Sinus Rhythm In Patients With Paroxysmal Atrial Fibrillation And Sick Sinus Node Syndrome," <i>Journal of the American College of Cardiology</i> , Vol. 17, No. 2, pp. 403-408 (Feb. 1991).	
	NPL64	Tweddell, J., <i>et al.</i> , "Potential Mapping In Septal Tachycardia: Evaluation Of A New Intraoperative Mapping Technique," <i>Circulation</i> , Vol. 80 (Suppl. I), No. 3, pp. I-97- I-108 (September 1989).	
	NPL65	Witkowski, F. and Corr P., "An Automated Simultaneous Transmural Cardiac Mapping System," <i>American Journal of Physiology</i> , Vol. 247, pp. H661-H668 (1984).	
	NPL66	Young, M., <i>et al.</i> , "A Real-Time Data Acquisition System For The Display Of Three Dimensional Cardiac Activation Maps," <i>Computers in Cardiology</i> , IEEE Computer Society Press, 0276-6547/92, pp. 331-334 (Oct. 11-14, 1992).	
	NPL67	Yuan, S., <i>et al.</i> , "Localization Of Cardiac Arrhythmias: Conventional Noninvasive Methods," <i>International Journal of Cardiac Imaging</i> , Vol. 7, pp. 193-205 (1991).	

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	NPL68	Kristin Clingman Spencer, "A Feasibility Study Of Determining The Position Of An Intracavitary Multielectrode Probe Via Impedance Measurements," Department Of Electrical Engineering In The Graduate School Of Duke University, 1991, pp. I-VII and 1-49.	
	NPL69	Patrick Donahoe Wolf, "Development And Evaluation Of An Algorithm To Determine Boundary Geometry And Electrode Location From Impedance Measurements," Department Of Biomedical Engineering In The Graduate School Of Duke University, 1992, pp. I-VIII and 1-86.	
	NPL70	"New Catheter Will Find And Treat Cardiac Arrhythmias," WPI Journal, Summer 1993, 2 pages.	
	NPL71	"Quickhull Algorithm For Convex Hulls," ACM Transactions on Mathematical Software, Vol. 22, No. 4, Dec. 1996, 1 page.	
	NPL72	P. Mendler <i>et al.</i> , "Multichannel Recording Of Cardiac Potentials," Medical And Biological Engineering And Computing, Vol. 18, No. 5, September 1980, pp. 617-624.	

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